



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/581,083

05/31/2006

Tomoichiro Tamura

060398

2052

23850 7590 12/10/2008
KRATZ, QUINTOS & HANSON, LLP
1420 K Street, N.W.
Suite 400
WASHINGTON, DC 20005

EXAMINER

COX, ALEXIS K

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

12/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,083	Applicant(s) TAMURA ET AL.	
	Examiner ALEXIS K. COX	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/05/2007, 11/30/2007, 5/31/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page lines 29-31 of page 13 of the specification, the term (= evaporation temperature) should be changed to and evaporation temperature.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 3744

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-11 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Alsenz (US Patent No. 5,035,119) and Fu et al (US Patent No. 5,433,019).

6. Regarding claim 1, figure 1 of Alsenz discloses a heat pump apparatus composed by sequentially connecting in series a compressor (30, see column 4 line 59) that compresses a refrigerant, a radiator (34, see column 4 line 59) that radiates the refrigerant discharged from the compressor, an expansion valve (38, see column 4 line 60) that expands the refrigerant radiated in the radiator, and an evaporator (44, see column 4 line 60) that evaporates the refrigerant expanded by the expansion valve. Alsenz further discloses a first temperature sensor (54, see column 5 line 68) for detecting the temperature of the refrigerant between the outlet of the evaporator and the inlet of the compressor and control means (10, 200, see column 4 line 55 and column 8 line 29; see also figures 9 and 10) for controlling a superheat value by changing flow resistance of the expansion valve (see column 4 lines 54-55 and column 5 lines 41-44) based on a detected value of the first temperature sensor.

7. It is noted that Alsenz does not explicitly disclose its utilization in a drying apparatus, an air channel in which drying air heated in the radiator is introduced to a subject to be dried, the drying air that absorbs moisture from the subject to be dried being dehumidified in the evaporator, and the dehumidified air being then heated in the radiator again to reuse the dehumidified air as the drying air. However, Fu et al explicitly

Art Unit: 3744

discloses a drying apparatus with an air channel (34, see column 4 lines 3-4) in which drying air which has been heated is introduced to a subject to be dried, the drying air that absorbs moisture from the subject to be dried is dehumidified (44, 33, 30, 10, see column 3 lines 60-62 and 53-56), and the dehumidified air is then heated again to reuse the dehumidified air as the drying air (see column 4 lines 12-14). Fu et al further discloses that all basic elements of the system are commercially available and there may be equivalent devices different from the ones described (see column 4 lines 23-28). As the heat pump of Alsenz would fulfill the purpose of the radiator and dehumidifier of Fu et al, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Alsenz and Fu et al to form a tea preparation device of greater efficiency than that of Fu et al alone.

8. Regarding claims 2-5 and 7, Alsenz discloses storage means (200, see column 8 line 29) capable of storing correlation data between time elapsing from start of operation of the heat pump apparatus and evaporation temperature of the refrigerant in the evaporator, and a target superheat value in advance; a timer (170, see column 13 lines 26-33) capable of detecting operation time of the heat pump apparatus; and processing means (200, see column 13 lines 45-49) capable of estimating evaporation temperature of the refrigerant based on the operation time detected by the timer and the correlation data stored in the storage means, and then estimating a superheat value based on the estimated evaporation temperature and the detected value detected by the first temperature sensor, wherein the control means is capable of controlling the flow resistance of the expansion valve so that the superheat value estimated by the

Art Unit: 3744

processing means becomes the target superheat value stored in the storage means.

Alsenz further discloses a second temperature sensor (52, see column 8 lines 12-13) for detecting the temperature of the refrigerant between the outlet of the expansion valve and the inlet of the evaporator, and a third temperature sensor (70, see column 12 line 22) for detecting the temperature of the refrigerant between the outlet of the compressor and the inlet of the expansion valve.

9. Regarding claims 6 and 11, Alsens further discloses selection means (200, see column 8 line 29) capable of selecting whether to apply the superheat value larger than that before the predetermined time elapses to that after the predetermined time elapses or not.

10. Further regarding claims 1-6, 8, and 11, the applicant is reminded that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations of the claims.

11. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alsens (US Patent No. 5,035,119) and Fu et al (US Patent No. 5,433,019), in view of Tanaka et al (US Patent No. 4,620,424).

12. Regarding claims 9 and 10, it is noted that Alsens and Fu et al do not disclose pressure detecting means for detecting discharge pressure of the compressor.

However, Tanaka et al explicitly discloses pressure detecting means (102, see column 5 lines 29-31 and figure 1) for detecting discharge pressure of the compressor. Further, as the systems of Alsens and Tanaka are of similar structure and function, it would have

Art Unit: 3744

been obvious to one of ordinary skill in the art at the time of the invention to implement the pressure sensor of Tanaka et al in the system of Alsenz and Fu et al in order to provide more information for more accurate and efficient control of the system.

13. Further regarding claim 10, the applicant is reminded that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations of the claims.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 6 of U.S. Patent No. 7,191,543.

Art Unit: 3744

Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons:

16. Regarding claim 1, '543 claims a drying apparatus (line 1 of claim 1) comprising a heat pump apparatus composed by sequentially connecting in series: a compressor that compresses a refrigerant (see lines 5-6 of claim 1); a radiator that radiates the refrigerant discharged from the compressor (see lines 6-7 of claim 1); an expansion valve that expands the refrigerant radiated in the radiator (see lines 7-8 of claim 1); and an evaporator that evaporates the refrigerant expanded by the expansion valve (see lines 8-9 of claim 1), and an air channel in which drying air heated in the radiator is introduced to a subject to be dried, the drying air that absorbs moisture from the subject to be dried being dehumidified in the evaporator, and the dehumidified air being then heated in the radiator again to reuse the dehumidified air as the drying air (see lines 10-22 of claim 1), the drying apparatus further comprising a first temperature sensor for detecting the temperature of the refrigerant between the outlet of the evaporator and the inlet of the compressor (see lines 3-4 of claim 6) and control means for controlling a superheat value by changing flow resistance of the expansion valve based on a detected value of the first temperature sensor (see claim 3 lines 2-4).

17. Regarding claims 9 and 10, '543 claims a discharge pressure detecting means for detecting discharge pressure of the compressor (see claim 4 lines 3-4) and an apparatus capable of, in the case where a detected value detected by the discharge pressure detecting means becomes a predetermined pressure or more, the control

Art Unit: 3744

means controlling the expansion valve so as to make the flow resistance of the expansion valve smaller (see lines 2-3 of claim 3).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ray (US Patent No. 2,355,894) discloses a refrigerating system with pressure sensor. Newton (US Patent NO. 3,688,516) discloses an air conditioning control system with pressure or temperature of the refrigerant as input, as does Baines et al (US Patent No. 3,882,691). Alsenz (US Patent No. 4,651,535) discloses a refrigeration system operated according to multiple temperature sensors, As does Derosier (US Patent No. 5,551,248). Ooyabu et al (US Patent No. 5,709,094) discloses an air conditioning system controlled according to a desired level of superheat. Guertin (US Patent No. 5,867,998) controls a refrigeration system according to refrigerant temperatures. And Ikeda et al (US Patent No. 5,367,787) and Rutz (US Patent No. 5,428,904) disclose drying machines which recirculate the air used to dry the items processed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXIS K. COX whose telephone number is (571)270-5530. The examiner can normally be reached on Monday through Thursday 8:00a.m. to 5:30p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-

Art Unit: 3744

6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AKC/

/Frantz F. Jules/
Supervisory Patent Examiner, Art Unit 3744